

ISIS - Bug #2289

marci2isis does not currently check for MARCI observations that have more than one exposure duration.

2015-07-23 05:56 PM - Moses Milazzo

Status:	Acknowledged	
Priority:	High	
Assignee:		
Category:		
Target version:		
Impact:		Software Version:
Description		
<p>The MARCI camera is allowed to change exposure durations during an observation. Because the exposure duration may change during the observation, the camera model must account for this. This should be checked and accounted for during ingestion so that the observation is adjusted appropriately as early as possible during the processing chain. A file, \$ISIS3DATA/mro/calibration/marci/varexp.tab lists the observations for which the MARCI team has reported changing exposure durations. This file is sourced from here: http://pdsimage.wr.usgs.gov/data/mro-m-marci-2-edr-l0-v1.0/LATEST/index/varexp.tab where LATEST is the latest MARCI PDS release volume.</p> <p>The marci2isis program should do something like the following:</p> <p>1) If, in the PDS IMG file, the difference between the START_TIME and STOP_TIME in seconds is not equal to (with some tolerance, TBD) the LINE_EXPOSURE_DURATION * LINES in seconds, then warn check the varexp.tab file. If the observation ID is in the file, use the listed LINE_EXPOSURE_DURATIONS (and associated starting LINES) to correct the observation before passing this observation to the camera model.</p> <p>2) If the difference exists but the image is not in the list, warn the user that the geometry and radiometry is probably going to be incorrect.</p> <p>Unfortunately, the START_TIME and STOP_TIME do not measure just the acquiring of photons from the surface, but also the setup and cleanup of the MARCI instrument. There may be some other way to check to see if the LINE_EXPOSURE_DURATION has changed by querying the observation metadata, but if not, we will need to simply assume that if the observation is not listed in the varexp.tab file, it has only a single LINE_EXPOSURE_DURATION.</p> <p>This bug affects both radiometric and geometric calibration of the instrument and is therefore should be corrected ASAP.</p> <p>See #1860 for additional information.</p>		
Related issues:		
Related to ISIS - Bug #1860: Exposure time changes are not accounted for in m...		Closed 2013-10-28
Related to ISIS - Bug #2305: MARCI camera model is not correct -- It needs to...		Acknowledged 2015-07-29
Related to ISIS - Bug #2276: MARCI Calibration errors		Acknowledged

History

#1 - 2015-07-23 05:56 PM - Moses Milazzo

- Related to Bug #1860: Exposure time changes are not accounted for in marci2isis added

#2 - 2015-07-24 10:52 AM - Moses Milazzo

After further discussion with Laz, it was decided that for the time being, marci2isis should check to see if the MARCI observation is in the varexp file. If it is, the ingestion program should remove the Instrument Group from the ISIS cube label so that no further geometric or radiometric process can be applied to this image.

The reason for deciding on this failure mode is to give the ISIS development team to research how the changing LINE_EXPOSURE_DURATION will affect geometric processing and pixel placement.

If the observation is in the varexp file, the marci2isis program should warn the user that this observation has problematic LINE_EXPOSURE_DURATION and thus will not be able to be processed through to level 1 or higher.

#3 - 2015-07-29 09:16 AM - Moses Milazzo

- Related to Bug #2305: MARCI camera model is not correct -- It needs to accommodate variable LINE_EXPOSURE_DURATION for both geometry and radiometry added

#5 - 2015-08-12 02:53 PM - Moses Milazzo

- Status changed from New to Acknowledged

#6 - 2016-03-25 07:22 AM - Stuart Sides

- Related to Bug #2276: MARCI Calibration errors added